Final Remarks

1) Conclusions
2) Recommendations for Research

9. Final Remarks

9.1 Conclusions

The Working Group draws the following conclusions:

1. Economic: Savings are possible by:

- Prevention of environmental decline in stead of rehabilitation
- Adaptive design (to bend one's mind to the natural processes in the site)
- Acceptance of a strategic plan and the funding required by the stakeholders
- Use of clean natural materials of the site

9. Final Remarks

9.1 Conclusions

2. Social: In order to optimize the benefits one should:

- List and evaluate the collective interest in the long term
- Combine wetland restoration with the improvement of the surroundings and living atmosphere
- Incorporate social aspects from the very beginning

9. Final Remarks

9.1 Conclusions

3. Technical: starting points for a good design are:

- Sound analysis of functions and values of the wetland concerned
- Structural analysis of the existing and desired situation
- Careful analysis of the ecological possibilities of the site
- Generation and optimization of various creative alternatives

9. Final Remarks

9.1 Conclusions

4. Environmental: Basic principles are:

- Basic understanding of the eco-system, the role of water resources, biological productivity and regeneration are fundamental
- If the natural eco-system in a wetland collapses, restoration is almost impossible
- One should accommodate unforeseen developments and take advantage of newly acquired knowledge
- Information and education of the social partners and the general public reduce the risk of pollution and disturbance of the site

9. Final Remarks

9.1 Conclusions

5. Legal: Port Developments have to recognize the RAMSAR convention, which states that contracting parties commit themselves to:

- Restore and rehabilitate wetlands whenever possible
- Conserve wetlands by ensuring their wise use
- Include wetland conservation within their national land-use planning
- Establish nature reserves on wetlands, and promote training
- Consult with other Parties about the implementation of the Convention

9. Final Remarks

9.1 Conclusions

6. **Institutional: The governing environmental policy and administrative capability is essential in order to safeguard:**

- **The integration of the interests of all stakeholders in the restoration of the site**
- **Appointment of the responsibilities during and after construction of the site**
- **Attribution of sufficient resources for the necessary maintenance**

9. Final Remarks

9.2 Recommendations

The working group recommends to carry out research on the following items:

1. Economic:

- The composition of the cost for wetland restoration and their contribution to the total cost of the (navigation) project
- Method to determine the economic benefits of the wetland in an independent way
- A system to weigh cost and benefits of a wetland
- A system to optimize the cost-benefit ratio

9. Final Remarks

9.2 Recommendations

2. Social:

- **A universal method to measure and evaluate the social interests**
- **Methods to incorporate social requirements in the design of a port area**
- **A method to determine the social value of a wetland in a certain area and the acceptable cost level for restoration**

9. Final Remarks

9.2 Recommendations

3. Technical:

- Methods for port development with minimum disturbance of the existing functions of wetlands
- System to determine the basic elements which are critical for success
- System of performance standards to be used to determine if a project meets its intended objectives
- A method for the risk analysis of the various technical solutions
- A model for the optimization of technical solutions

9. Final Remarks

9.2 Recommendations

4. Environmental:

- **Improvement and validation of the existing models for ecosystems**
- **Improvement of the connection of models for the eco-system to hydrological and morphological models**
- **Development of criteria for measurable objectives**
- **Optimization of methods to monitor the objectives**

9. Final Remarks

9.2 Recommendations

5. Legal:

- **Develop a central database to gather knowledge and experience of legal items related to wetlands**
- **Analysis of the legal consequences of conventions and directives for port development**
- **Comparison and analysis of legislation in countries inside and outside Europe, like USA and Japan**
- **Analysis of the differences in national legislation and their influence on the competitive position of ports**

9. Final Remarks

9.2 Recommendations

6. Institutional:

- **Procedures for the realization of an organization which understands the need for long-term stewardship and has sufficient power to raise the funding required**
- **Analysis of the interests of the various stakeholders and their possible willingness to support restoration and maintenance of wetlands**
- **Analysis of decision procedures and ways to optimize these**


1) References
2) Bibliography
3) Glossary of Terms
4) Case Studies

GLOSSARY

Accuracy	**Accuracy is the degree of conformity of a measure to a standard or a true value**
Biodiversity	**The variability among living organisms of different origin. This includes terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part of. It also includes the diversity within species, between species and of ecosystems (Convention on Biological Diversity, Rio de Janeiro, 1992**

GLOSSARY (cont.)

Carrying capacity	The population that an area can support without undergoing deterioration
Goals of a project	Goals are general statements about desired project outcomes; stating goals allows all stakeholders to understand, in general terms, the desired direction of a project

GLOSSARY (cont.)

Invasive species	**Species that are not indigenous to the site and that can seriously effect local ecosystems**

CASE STUDIES

- River Seine ESTUARY (France)
- Restoration of the Pierre-Bénite Arms of Vieux Rhône (France)
- The Niffer-Mulhouse Navigation Channel (France)
- The Amvrakikos Wetlands Restoration (Greece)
- Stowaways: Introduction of Macroinvertebrate Species Through Canal Building
- Maasvlakte (Netherlands)
- Scheldt Estuary (Netherlands)
- Ca' di Mezzo (Italy)
- Sea Blue Project (Japan)
- Moidrey Cove (France)
- Restoration of the Maritime Environment of Mont-St-Michel (France)
- Seaside Park (Japan)
- Mississippi River – Gulf Outlet (MRGO) (USA)